



## SEQUENCE LISTING

<110> Ress-Loeschke, Marion  
Friedrich, Thomas  
Hauer, Bernhard

<120> A process for preparing chiral carboxylic acids from nitriles using a  
nitrilase or microorganisms which comprise a gene for the nitrilase

<130> 49462

<140> US 09/806,876

<141> 1999-10-13

<150> Germany/19848129.2

<151> 1998-10-19

<160> 9

<170> WordPerfect version 6.1

<210> 1

<211> 1071

<212> DNA

<213> *Alcaligenes faecalis*

<220>

<221> CDS

<222> 1 ... 1071

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ccc aac tac gat ctg gca acg ggt gtt gat aaa acc att gag ctg gct	96
Pro Asn Tyr Asp Leu Ala Thr Gly Val Asp Lys Thr Ile Glu Leu Ala	
20 25 30	
cgt cag gcc cgc gat gag ggc tgt gac ctg atc gtg ttt ggt gaa acc	144
Arg Gln Ala Arg Asp Glu Gly Cys Asp Leu Ile Val Phe Gly Glu Thr	
35 40 45	
tgg ctg ccc gga tat ccc ttc cac gtc tgg ctg ggc gca ccg gcc tgg	192
Trp Leu Pro Gly Tyr Pro Phe His Val Trp Leu Gly Ala Pro Ala Trp	
50 55 60	
tcg ctg aaa tac agt gcc cgc tac tat gcc aac tcg ctc tcg ctg gac	240
Ser Leu Lys Tyr Ser Ala Arg Tyr Tyr Ala Asn Ser Leu Ser Leu Asp	
65 70 75 80	

agt gca gag ttt caa cgc att gcc cag gcc gca cgg acc ttg ggt att Ser Ala Glu Phe Gln Arg Ile Ala Gln Ala Ala Arg Thr Leu Gly Ile 85 90 95	288
ttc atc gca ctg ggt tat agc gag cgc agc ggc ggc agc ctt tac ctg Phe Ile Ala Leu Gly Tyr Ser Glu Arg Ser Gly Gly Ser Leu Tyr Leu 100 105 110	336
ggc caa tgc ctg atc gac gac aag ggc gag atg ctg tgg tcg cgt cgc Gly Gln Cys Leu Ile Asp Asp Lys Gly Glu Met Leu Trp Ser Arg Arg 115 120 125	384
aaa ctc aaa ccc acg cat gta gag cgc acc gta ttt ggt gaa ggt tat Lys Leu Lys Pro Thr His Val Glu Arg Thr Val Phe Gly Glu Gly Tyr 130 135 140	432
gcc cgt gat ctg att gtg tcc gac aca gaa ctg gga cgc gtc ggt gct Ala Arg Asp Leu Ile Val Ser Asp Thr Glu Leu Gly Arg Val Gly Ala 145 150 155 160	480
cta tgc tgc tgg gag cat ttg tcg ccc ttg agc aag tac gcg ctg tac Leu Cys Cys Trp Glu His Leu Ser Pro Leu Ser Lys Tyr Ala Leu Tyr 165 170 175	528
tcc cag cat gaa gcc att cac att gct gcc tgg ccg tcg ttt tcg cta Ser Gln His Glu Ala Ile His Ile Ala Ala Trp Pro Ser Phe Ser Leu 180 185 190	576
tac agc gaa cag gcc cac gcc ctc agt gcc aag gtg aac atg gct gcc Tyr Ser Glu Gln Ala His Ala Leu Ser Ala Lys Val Asn Met Ala Ala 195 200 205	624
tcg caa atc tat tcg gtt gaa ggc cag tgc ttt acc atc gcc gcc agc Ser Gln Ile Tyr Ser Val Glu Gly Gln Cys Phe Thr Ile Ala Ala Ser 210 215 220	672
agt gtg gtc acc caa gag acg cta gac atg ctg gaa gtg ggt gaa cac Ser Val Val Thr Gln Glu Thr Leu Asp Met Leu Glu Val Gly Glu His 225 230 235 240	720
aac gcc ccc ttg ctg aaa gtg ggc ggc ggc agt tcc atg att ttt gcg Asn Ala Pro Leu Leu Lys Val Gly Gly Ser Ser Met Ile Phe Ala 245 250 255	768
ccg gac gga cgc aca ctg gct ccc tac ctg cct cac gat gcc gag ggc Pro Asp Gly Arg Thr Leu Ala Pro Tyr Leu Pro His Asp Ala Glu Gly 260 265 270	816
ttg atc att gcc gat ctg aat atg gag gag att gcc ttc gcc aaa gcg Leu Ile Ile Ala Asp Leu Asn Met Glu Glu Ile Ala Phe Ala Lys Ala 275 280 285	864

atc aat gac ccc gta ggc cac tat tcc aaa ccc gag gcc acc cgt ctg 912  
 ile asn asp pro val gly his tyr ser lys pro glu ala thr arg leu  
 290 295 300  
 gtg ctg gac ttg ggg cac cga gac ccc atg act cgg gtg cac tcc aaa 960  
 val leu asp leu gly his arg asp pro met thr arg val his ser lys  
 305 310 315 320  
 agc gtg acc agg gaa gag gct ccc gag caa ggt gtg caa agc aag att 1008  
 ser val thr arg glu glu ala pro glu gln gly val gln ser lys ile  
 325 330 335  
 gcc tca gtc gct atc agc cat cca cag gac tcg gac aca ctg cta gtg 1056  
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 <213> *Alcaligenes faecalis*

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 Pro Asn Tyr Asp Leu Ala Thr Gly Val Asp Lys Thr Ile Glu Leu Ala  
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 Arg Gln Ala Arg Asp Glu Gly Cys Asp Leu Ile Val Phe Gly Glu Thr  
 35 40 45  
 Trp Leu Pro Gly Tyr Pro Phe His Val Trp Leu Gly Ala Pro Ala Trp  
 50 55 60  
 Ser Leu Lys Tyr Ser Ala Arg Tyr Tyr Ala Asn Ser Leu Ser Leu Asp  
 65 70 75 80  
 Ser Ala Glu Phe Gln Arg Ile Ala Gln Ala Ala Arg Thr Leu Gly Ile  
 85 90 95  
 Phe Ile Ala Leu Gly Tyr Ser Glu Arg Ser Gly Gly Ser Leu Tyr Leu  
 100 105 110  
 Gly Gln Cys Leu Ile Asp Asp Lys Gly Glu Met Leu Trp Ser Arg Arg  
 115 120 125

Lys Leu Lys Pro Thr His Val Glu Arg Thr Val Phe Gly Glu Gly Tyr  
 130 135 140  
 Ala Arg Asp Leu Ile Val Ser Asp Thr Glu Leu Gly Arg Val Gly Ala  
 145 150 155 160  
 Leu Cys Cys Trp Glu His Leu Ser Pro Leu Ser Lys Tyr Ala Leu Tyr  
 165 170 175  
 Ser Gln His Glu Ala Ile His Ile Ala Ala Trp Pro Ser Phe Ser Leu  
 180 185 190  
 Tyr Ser Glu Gln Ala His Ala Leu Ser Ala Lys Val Asn Met Ala Ala  
 195 200 205  
 Ser Gln Ile Tyr Ser Val Glu Gly Gln Cys Phe Thr Ile Ala Ala Ser  
 210 215 220  
 Ser Val Val Thr Gln Glu Thr Leu Asp Met Leu Glu Val Gly Glu His  
 225 230 235 240  
 Asn Ala Pro Leu Leu Lys Val Gly Gly Gly Ser Ser Met Ile Phe Ala  
 245 250 255  
 Pro Asp Gly Arg Thr Leu Ala Pro Tyr Leu Pro His Asp Ala Glu Gly  
 260 265 270  
 Leu Ile Ile Ala Asp Leu Asn Met Glu Glu Ile Ala Phe Ala Lys Ala  
 275 280 285  
 Ile Asn Asp Pro Val Gly His Tyr Ser Lys Pro Glu Ala Thr Arg Leu  
 290 295 300  
 Val Leu Asp Leu Gly His Arg Asp Pro Met Thr Arg Val His Ser Lys  
 305 310 315 320  
 Ser Val Thr Arg Glu Glu Ala Pro Glu Gln Gly Val Gln Ser Lys Ile  
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 340 345 350  
 Gln Glu Pro Ser  
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<211> 39

<212> PRT

<213> *Alcaligenes faecalis*

<400> 3

Met Gln Thr Arg Lys Ile Val Arg Ala Ala Ala Val Gln Ala Ala Ser  
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Pro Asn Tyr Asp Leu Ala Thr Gly Val Asp Lys Thr Ile Glu Leu Ala  
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Arg Gln Ala Arg Asp Glu Gly  
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 <212> PRT  
 <213> *Alcaligenes faecalis*

<400> 4

Glu Glu Ala Pro Glu Gln Gly Val Gln Ser Lys Ile Ala Ser Val Ala  
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Ile Ser His Pro Gln  
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<210> 5  
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 <213> *Alcaligenes faecalis*

<400> 5

Glu Glu Ala Pro Glu Gln Gly Val Gln Ser Lys  
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 <213> *Alcaligenes faecalis*

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23

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 <213> *Alcaligenes faecalis*

<400> 7

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<210> 8

<211> 31

<212> DNA

<213> *Alcaligenes faecalis*

<400> 8

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31

<210> 9

<211> 32

<212> DNA

<213> *Alcaligenes faecalis*

<400> 9

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